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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,488	08/15/2001	Kimikazu Matsumoto	250901/00	1362

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EXAMINER

RUDE, TIMOTHY L

ART UNIT PAPER NUMBER

2871

DATE MAILED: 03/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/929,488

Applicant(s)

MATSUMOTO, KIMIKAZU

Examiner

Timothy L Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 30 December 2002 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of USPAT 6,300,992 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 112

2. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: The angle between a first alignment layer aligning treatment and a direction in which common and pixel electrodes are wired in parallel with each other lacks clear definition of said direction, which results in an incomplete definition of said angle. For examination purposes, said direction will be interpreted to be along the electric field lines that occur when the pixel electrodes and common electrodes are energized. Correction or cancellation of claim 3 is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baur et al (Baur) USPAT 5,576,867.

As to claims 1 and 2, Baur discloses in Figures 1-8 a number of embodiments of an active matrix type liquid crystal display device, comprising: a TFT substrate (col. 5, lines 56-59) having a common wiring and a source/drain wiring formed on a first substrate, said first substrate being provided with an insulating film, 8, Figure 1, covering said common wiring and said source/drain wiring, said insulating film being coated with a first alignment layer, 5, Figure 1; an opposite substrate opposing to said TFT substrate having a second alignment layer, 6, Figure 1, formed on a second substrate; a liquid crystal held between said first alignment layer and said second alignment layer; and a stripe or line-type electrode, 9, Figure 1 (Applicant's common electrode), and a stripe or line-type electrode, 10, Figure 1 (Applicant's pixel electrode) wired in parallel with each other being formed as parts of said common wiring and said source/drain wiring, respectively.

Baur does not explicitly disclose 0.5 to 4.0 degrees.

Baur teaches that an angle made between a direction in which said first alignment layer is subjected to aligning treatment and a direction in which said second alignment layer is subjected to aligning treatment is set to a value of β (col. 8, lines 60-65, and col. 13, lines 39-44) is within 15 degree of 0° (overlaps Applicant's 0.5 to 4.0

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degrees and 1.5 to 2.0 degrees) to produce a display with low dependence of image contrast on viewing angle (Abstract). Therefore, optimization of the results effective variable β to comprise Applicant's ranges of 0.5 to 4.0 degrees and 1.5 to 2.0 degrees would have been obvious to those having ordinary skill in the art of liquid crystals.

Baur is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to comprise an angle made between a direction in which said first alignment layer is subjected to aligning treatment and a direction in which said second alignment layer is subjected to aligning treatment is set to a value of 0.5 to 4.0 degrees or 1.5 to 2.0 degrees to produce a display with low dependence of image contrast on viewing angle.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Baur with an angle made between a direction in which said first alignment layer is subjected to aligning treatment and a direction in which said second alignment layer is subjected to aligning treatment is set to a value of 0.5 to 4.0 degrees or 1.5 to 2.0 degrees to produce a display with low dependence of image contrast on viewing angle.

As to claims 3 and 4, Baur teaches an embodiment wherein said direction in which said first alignment layer is subjected to aligning treatment has an angle of $\beta_0 - \beta$ (col. 8, line 60 through col. 9, line 17) where β_0 is $>0^\circ$ and $<20^\circ$ and β is $0^\circ \pm 15^\circ$ which yields a maximum range of 5 to 35 degrees (overlaps Applicant's 5 to 45 degrees) (col. 10, Table 2, line D2) with respect to a direction in which said common electrode and

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said pixel electrode are wired in parallel with each other, wherein an angle made between a direction in which said second alignment layer is subjected to aligning treatment and a direction in which said common electrode and said pixel electrode are wired in parallel with each other is larger than an angle made between said direction in which said first alignment layer is subjected to aligning treatment and a direction in which said common electrode and said pixel electrode are wired in parallel with each other due to twist angle β being $0^\circ \pm 15^\circ$.

As to claim 5, Baur discloses a display wherein said TFT substrate and said opposite substrate having said liquid crystal therebetween include a first substrate side polarizer and a second substrate side polarizer on opposite sides opposing to inner sides of said TFT substrate and said opposite substrate facing said liquid crystal, respectively, and in said first substrate side polarizer and said second substrate side polarizer, the absorption axis and transmission axis are mutually orthogonal and ψ is 0° or 90° (col. 9, lines 25-35, and col. 10, Table 2, line D2) (Applicant's any one of the absorption axis and the transmission axis of said first substrate side polarizer agrees with said direction in which said first alignment layer is subjected to aligning treatment).

As to claim 6, Baur discloses a display wherein a distance between surfaces of said first alignment layer and said second alignment layer opposing to each other is set to a value of $1.0 \mu\text{m}$ to $10.0 \mu\text{m}$ (col. 11, lines 44-50) (overlaps Applicant's $1.0 \mu\text{m}$ to 6.0

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μm). Therefore, optimization of the results effective variable to comprise Applicant's range would have been obvious to those having ordinary skill in the art of liquid crystals.

As to claim 7, Baur discloses a display wherein a distance between said common electrode and said pixel electrode wired in parallel with each other is set to a value of 2 μm to 50 μm (col. 11, lines 47-51) (overlaps Applicant's 2 μm to 15 μm). Therefore, optimization of the results effective variable to comprise Applicant's range would have been obvious to those having ordinary skill in the art of liquid crystals.

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baur in view of Applicant's admitted prior art (APA).

As to claims 8 and 9, Baur does not explicitly disclose a display wherein a gate wiring of a thin film transistor is formed on said first substrate simultaneously with said common wiring and wherein an island disposed above said common wiring and made of a semiconductor film is formed in said insulating film, and said island constitutes an active region of a thin film transistor. However, these are merely common knowledge means of comprising a satisfactory TFT display configuration.

Applicant's admitted prior art (APA) discloses these claimed features in Applicant's Figures 1A and 1B to comprise a satisfactory TFT display configuration.

FIG. 1A(PRIOR ART)

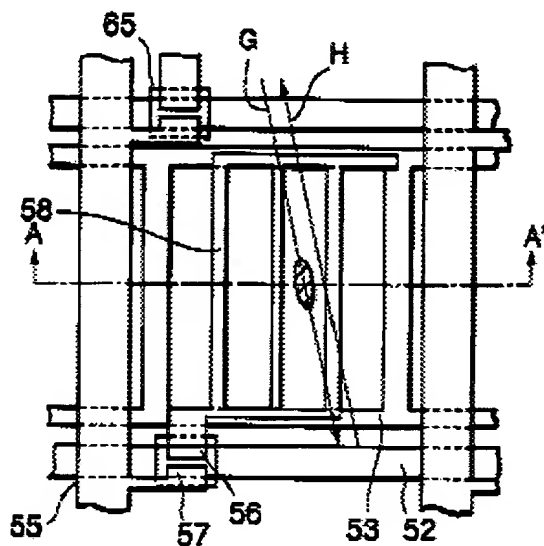
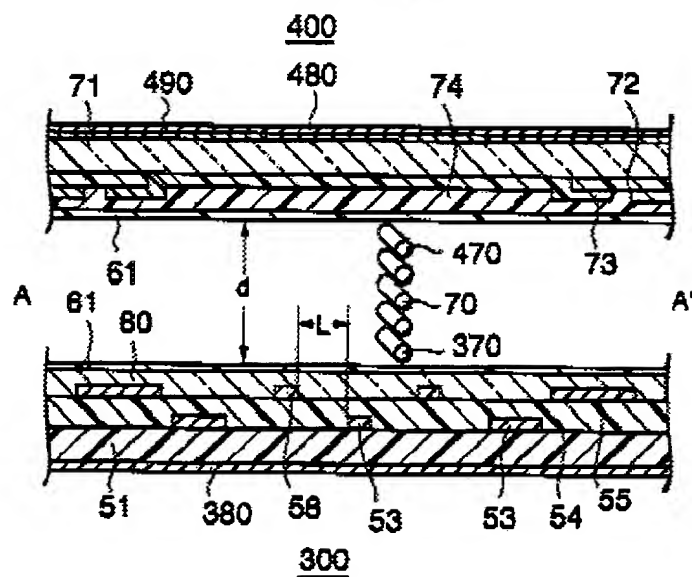


FIG. 1B



APA is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a display wherein a gate wiring of a thin film transistor is formed on said first substrate simultaneously with said common wiring and wherein an island disposed above said common wiring and made of a semiconductor

film is formed in said insulating film, and said island constitutes an active region of a thin film transistor to comprise a satisfactory TFT display configuration.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Baur with a display wherein a gate wiring of a thin film transistor is formed on said first substrate simultaneously with said common wiring and wherein an island disposed above said common wiring and made of a semiconductor film is formed in said insulating film, and said island constitutes an active region of a thin film transistor of APA to comprise a satisfactory TFT display configuration.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baur in view of Applicant's admitted prior art Ohta et al (Ohta) USPAT 6,532,053 B2.

As to claims 8 and 9, Baur does not explicitly disclose a display wherein a gate wiring of a thin film transistor is formed on said first substrate simultaneously with said common wiring and wherein an island disposed above said common wiring and made of a semiconductor film is formed in said insulating film, and said island constitutes an active region of a thin film transistor. However, these are merely common knowledge means of comprising a satisfactory TFT display configuration.

Ohta discloses these claimed features in Figures 2 and 3 to comprise a satisfactory TFT display configuration with *inter alia* wide viewing angle (Abstract).

FIG.2

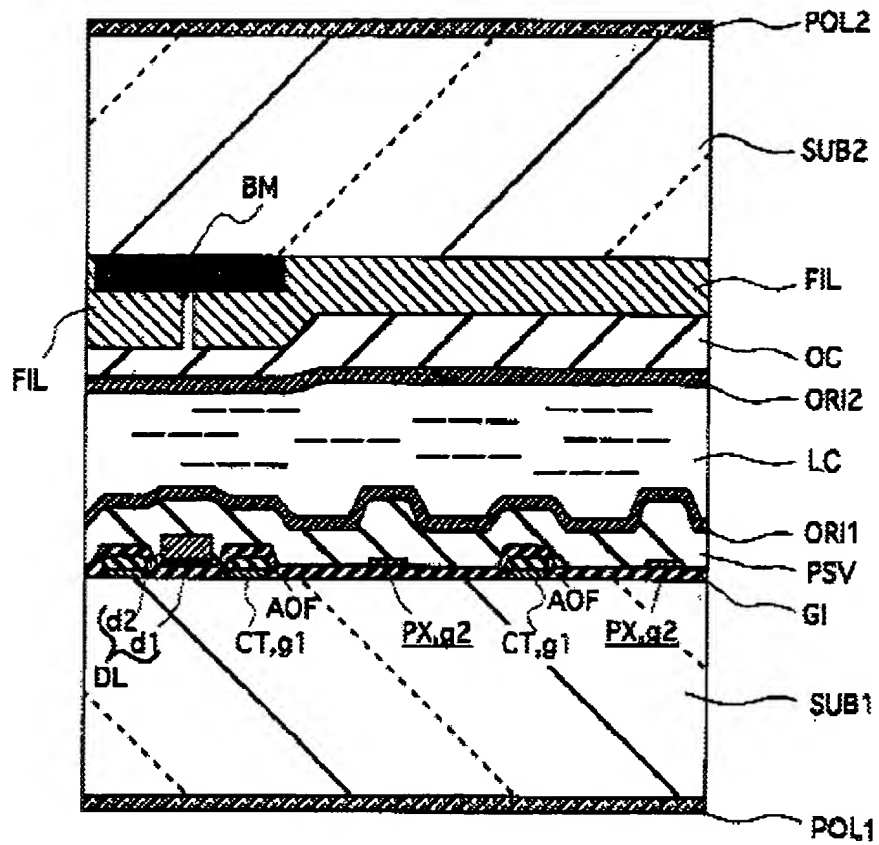
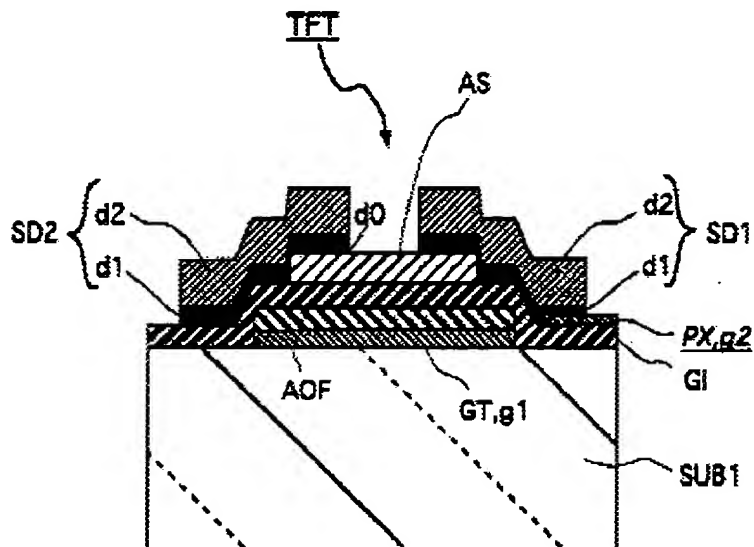


FIG.3



Ohta is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a display wherein a gate wiring of a thin film transistor is formed on said first substrate simultaneously with said common wiring and wherein an island disposed above said common wiring and made of a semiconductor film is formed in said insulating film, and said island constitutes an active region of a thin film transistor to comprise a satisfactory TFT display configuration with wide viewing angle.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Baur with a display wherein a gate wiring of a thin film transistor is formed on said first substrate simultaneously with said common wiring and wherein an island disposed above said common wiring and made of a semiconductor film is formed in said insulating film, and

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said island constitutes an active region of a thin film transistor of Ohta to comprise a satisfactory TFT display configuration with wide viewing angle.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



Timothy L Rude
Examiner
Art Unit 2871

TLR
March 17, 2003



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